PATENT
Docket No. **0050-0080**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of:	)	MS: **APPEAL BRIEF - PATENTS**
	)	
Hiroshi Ueno	)	Group Art Unit: 2664
	)	
Application No.: 09/473,022	)	Examiner: Jain, Raj
	)	
Filed: December 28, 1999	)	
	)	
For: MULTIPLEXING APPARATUS AND CELL DISCARD METHOD	)	
	)	

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APPEAL BRIEF

This Appeal Brief is submitted in response to the final Office Action, dated December 12, 2005, and in support of the Notice of Appeal, filed April 11, 2006.

I. REAL PARTY IN INTERES

The real party in interest in this appeal is Juniper Networks, Inc.

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

Appellant is unaware of any related appeals, interferences or judicial

proceedings.

III. STATUS OF CLAIMS

Claims 1-4, 7, and 9-12 are pending in this application.

Claims 1-3, 7, and 9-12 were finally rejected in the Office Action, dated December 12, 2005. Claim 4 was objected to as being dependent upon a rejected base claim, but was indicated as allowable if rewritten in independent form. Claims 1-3, 7, and 9-12 are the subject of the present appeal. Claims 1-4, 7, and 9-12 are reproduced in the Claim Appendix of this Appeal Brief.

IV. STATUS OF AMENDMENTS

No amendments were filed subsequent to the final Office Action of December 12, 2005.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Each of the independent claims involved in this appeal is recited below, followed in parenthesis by examples of where support can be found in the specification and drawings for the claimed subject matter. In addition, each dependent claim argued separately below is also summarized in a similar manner.

Independent claim 1 is directed to a multiplexing apparatus (Figs. 1 and 2,

element 109) for connection to a switching unit (Fig. 1, element 101) and to each of plural subscribers through communication lines and performing multiplexing processing of cells sent from the plural subscribers. The multiplexing apparatus includes detection means (Fig. 1, element 113; p. 8, lines 6-9) and discard means. (Figs. 1 and 3, element 115; and p. 8, lines 12-19). The detection means is for detecting a congestion state corresponding to received cells from the subscribers and outputting a level value (Fig. 2, element 129; p. 9, lines 2-4) corresponding to the congestion state, said level value indicating an amount of congestion. The discard means (Figs. 1 and 3, element 115; p. 8, lines 12-19) is for selectively discarding the received cells from the subscribers based on a communication state determined by cells received from the switching unit and cells received from the subscribers and based on the level value of the congestion state (p. 9, lines 1-6).

Dependent claim 2 further defines the multiplexing apparatus of claim 1 and recites that the communication state is updated on the basis of header information included in the received cells from the switching unit and header information included in the received cells from the subscribers (p. 7, line 28 through p. 8, line 5; and p. 8, lines 12-15).

Dependent claim 7 further defines claim 4 and recites that the discard command is generated on the basis of criteria of a preset logic decision (p. 9, lines 13-19).

Independent claim 9 is directed to a method of discarding cells that includes receiving cells sent from subscribers and detecting a congestion state of the received cells from the subscribers (Fig. 7, block S102; and p. 16, lines 5 and 6). The method further includes updating a communication state determined based on the received cells from the subscribers and based on received cells from a switching unit (Fig. 7, block S105; and p. 16, lines 14-17); deciding, to obtain a decision result, whether discard processing of the received cells from the subscribers is performed on the basis of the updated communication state and a level value of a signal indicating the congestion state, said level value indicating an amount of congestion (Fig. 7, block S106; and p. 16, lines 17-20); and selectively performing the discard processing on the basis of the decision result (Fig. 7, block S107; and p. 16, lines 24-26).

Independent claim 10 is directed to a multiplexing device (Figs. 1 and 2, element 109) that includes a discard control component (Figs. 1-3, element 115) configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber (p. 7, line 28 through p. 8, line 5; and p. 8, lines 12-15); and a detection component (Figs. 2, elements 113 and 118). The detection component includes a queue (Fig. 2, element 119) for storing cells from the subscriber (p. 9, line 13), and a comparison component (Fig. 2, element 121) configured to compare a degree of occupancy of the queue to a threshold to obtain a congestion level corresponding

to an amount of congestion of the queue (p. 9, lines 13-25). The discard control component selectively discards cells received from the subscriber based on the congestion level and the communication state information (p. 9, lines 1-6).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1-3, 7, and 9-11 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,163,528 to Nagamoto ("Nagamoto").

VII. ARGUMENTS

A. The rejection under 35 U.S.C. § 102(e) based on Nagamoto should be reversed.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either expressly or impliedly. Any feature not directly taught must be inherently present. In other words, the identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. § 2131. Nagamoto fails to disclose a number of the features recited in claims 1-3, 7 and 9-11. Accordingly, the rejections based on Nagamoto should be reversed.

1. Claims 1 and 3

Claim 1 is directed to a multiplexing apparatus for connection to a switching unit and to each of plural subscribers through communication lines. Claim 1 recites, among other things, discard means for selectively discarding the

received cells from the subscribers based on a communication state determined by cells received from the switching unit and cells received from the subscribers and based on the level value of a congestion state. Nagamoto does not disclose or suggest the discard means recited in claim 1.

Nagamoto generally discloses a selective cell discard system in an ATM switch. (Nagamoto, Title). In Fig. 2, Nagamoto illustrates a number of selective cell discard controllers (PD). The operation of the PDs are said to relate to a congestion state of the cell buffers (CBs) shown in Fig. 2 and on a service class of the cells. (See Nagamoto, col. 4, lines 6-16).

The Examiner contends that Nagamoto discloses the selective discarding of cells (Final Office Action of December 15, 2005, p. 6; and Advisory Action of March 15, 2006, p. 2). PD1 through PDx, (Fig. 2 of Nagamoto), for instance, are described by Nagamoto as "selective cell discard controllers." The selective cell discard controllers of Nagamoto, however, do not operate based on the criteria recited in claim 1. In particular, Nagamoto does not discard cells based on a communication state, as recited in claim 1, which is determined, based on, among other things, cells received from the switching unit and cells received from the subscribers.

Nagamoto appears to disclose two general criteria on which cell discard control is based. Specifically, Nagamoto discloses that (1) the "cell discard control varies depending on the service class of a cell," (Nagamoto, column 4,

lines 9 and 10), and (2) "the cell discard control at PD is conducted according to the congestion state at the cell buffer CB1 for output port group" (Nagamoto, column 4, lines 34-46).

Regarding criteria (1), the "service class of a cell," Nagamoto discusses various service classes of cells at column 4, lines 9-33. This section of Nagamoto describes that cells may be classified according to classes, such as CBR (constant bit rate), rt-VBR (real time variable bit rate) and nrt-VBR (non real time variable bit rate). (Nagamoto, column 4, lines 9-12). According to Nagamoto, different service classes may be treated differently when determining whether to drop cells. (Nagamoto, column 4, lines 8-33).

Appellant submits that performing cell discard control based on the service class of a cell, as disclosed by Nagamoto, does not reasonably correspond to the discard means recited in claim 1, which selectively discards received cells from subscribers based on, among other things, a communication state determined by cells received from the switching unit and cells received from the subscribers. The service class of a cell appears to be a preset property of a cell and cannot be said to correspond to a communication state that is determined, as recited in claim 7.

Regarding criteria (2), "the congestion state at the cell buffer," Nagamoto, in column 4, states:

> Next, the cell discard control at PD is conducted according to the congestion state at the cell buffer CB1 for output port group, where

> a threshold value (for example, a common threshold value to all the buffers) to each of the buffers CB1-1 to -y is preset and the number of staying cells in a concerned buffer and its threshold are compared. If the number of staying cells >= preset threshold value . . . (1), the signal of logic "1" is output, and if it is not so, the signal of logic "0" is output. These signals are hereinafter referred to as "a back pressure signal (or abbreviated as `BP`)".
>
> The selective cell discard controllers PD1 to PDx check the logic of signal BP from a passed cell buffer of the cell buffers CB1 for output port group according to routing information of the input cell. When at least one signal of "1" exists, BP to the concerned input cell is processed as logic "1"(congestion existing).

(Nagamoto, column 4, lines 34-49). As described in these sections of Nagamoto, cell discard control is based on the congestion state at the cell buffers (as communicated by a back pressure 'BP' signal). Appellant notes that, as shown in Fig. 2, the cell buffers are in switch unit (SW1) of Nagamoto. As with Nagamoto's discard control based on the service class of a cell, Appellant submits that controlling cell discard based on a congestion state of cell buffers in a switch unit, as disclosed by Nagamoto, cannot be reasonably said to disclose or suggest, as recited in claim 1, a communication state determined by cells received from the switching unit and cells received from the subscribers.

Because neither of the above-discussed factors (1) nor (2) of Nagamoto relate to a communication state determined by cells received from the subscribers, Appellant submit that Nagamoto clearly does not disclose or suggest the discard means recited in claim 1, which selectively discards received cells from the subscribers based on a communication state determined by cells

received from the switching unit and cells received from the subscribers and based on the level value of the congestion state. For at least this reason, Appellants submit that Nagamoto does not disclose each of the features recited in claim 1.

In the Final Office Action of December 15, 2005, the Examiner responded to arguments similar to those given above. More specifically, the Examiner points to a number of sections of Nagamoto and contends that these sections of Nagamoto disclose a discard means that discards selectively. (Final Office Action, page 6). The Examiner appears to be contending that any structure that selectively discards data anticipates the discard means recited in claim 1. Appellant respectfully disagrees with the Examiner's interpretation of claim 1. As mentioned above, Appellant does not dispute that Nagamoto discloses selectively discarding of data. The discard means of claim 1, however, recites selectively discarding received cells based on specifically recited criteria that is not disclosed or suggested by Nagamoto. More specifically, Nagamoto does not disclose or suggest discard means for selectively discarding received cells from the subscribers based on a communication state determined by cells received from the switching unit and cells received from the subscribers and based on the level value of the congestion state, as recited in claim 1.

In the Advisory Action dated March 15, 2006, the Examiner further reiterates that because Nagamoto discloses "selective discard," Nagamoto

discloses the discard means recited in claim 1. For the reasons given above, Appellant submits that simply because Nagamoto discloses selectively discarding data in no way discloses or suggests each of the features recited in claim 1.

Further, in the Final Office, the Examiner points to the first full paragraph on page 3 of the instant specification, and contends that the "use state" mentioned in this section of the specification is "construe[ed] to mean that actual usage of the communications network which in part would also include the congestion state and in turn the overall 'communication state' of the network." (Final Office Action, page 7). In making this statement, the Examiner refers to the following sentence in the "Background of the Invention" section of the specification:

> The discard processing is desirably performed on the basis of a logical decision using a plurality of data providing the use state (communication state) of the connection and level information of the congestion state.

(Specification, first full paragraph, page 3).

Appellant submits that the Examiner's statement is not particularly relevant to the rejection of claim 1. The fact that the "use state" mentioned in the specification can refer to a communication state does not change the fact that Nagamoto does not disclose or suggest a communication state "determined by cells received from the switching unit and cells received from the subscribers and based on the level value of the congestion state," as recited in claim 1.

For at least these reasons, Appellant submits that Nagamoto clearly does not disclose or suggest each of the features recited in claim 1, and accordingly, the rejection of claim 1 based on Nagamoto is improper and should be reversed.

Claim 3 depends from claim 1. Therefore, this claim is patentable over Nagamoto for at least the reasons given above with respect to claim 1.

2. Claim 2

Claim 2 depends from claim 1. Therefore, claim 2 is patentable over Nagamoto for at least the reasons given above with respect to claim 1. Moreover, claim 2 recites additional features that are not disclosed or suggested by Nagamoto.

Claim 2 recites that the communication state of claim 1 is updated on the basis of header information included in the received cells from the switching unit and header information included in the received cells from the subscribers. As previously discussed, Nagamoto does not disclose or suggest the communication state recited in claim 1, and Nagamoto certainly does not disclose or suggest updating a communication state based on header information included in received cells from the switching unit and header information included in the received cells from the subscribers.

In rejecting claim 2, the Examiner appears to contend that Nagamoto discloses cells and that header information is inherent in cells. (Final Office

Action, page 3). Further, in the "Response to Arguments" section of the Final Office Action, the Examiner gives official notice that it is known to update header information in cells traversing a network. (Final Office Action, page 7). Appellant submits that the Examiner is ignoring features recited in claim 2. Claims 1 and 2 recite more than simply updating a switching unit or updating cell header information. Instead, claim 2 recites that the communication state, which is used by the discard means as recited in claim 1, is updated in the specific manner recited in claim 2. Nowhere does Nagamoto disclose updating any type of communication state information that is then used by the selective cell discard controllers of Nagamoto, much less updating the communication state information in the specific manner recited in claim 2. For at least these additional reasons, claim 2 is not anticipated by Nagamoto.

3. Claim 7

Claim 7 depends from claim 4, which the Examiner indicates is allowable over the prior art of record. In view of its dependency from claim 4, Appellant submits that the rejection of claim 7 under 35 U.S.C. § 102(e) in view of Nagamoto is clearly improper and should be reversed.

4. Claim 9

Independent claim 9 also stands rejected under 35 U.S.C. § 102(e) based

on Nagamoto.

Claim 9 is directed to a method of discarding cells. The method includes receiving cells sent from subscribers and detecting a congestion state of the received cells from the subscribers and updating a communication state determined based on the received cells from the subscribers and based on received cells from a switching unit. The method of claim 9 further includes deciding, to obtain a decision result, whether discard processing of the received cells from the subscribers is performed on the basis of the updated communication state and a level value of a signal indicating the congestion state, said level value indicating an amount of congestion. Further, the method of claim 9 includes selectively performing the discard processing on the basis of the decision result.

As mentioned with respect to claim 1, although Nagamoto may be said to discard cells in a switching unit, Nagamoto does not disclose or suggest discarding cells based on a communication state and a level value of a signal indicating a congestion state, in which, as recited in claim 9, the communication state is updated based on received cells from subscribers and based on received cells from a switching unit. Instead, Nagamoto explicitly discloses cell discard control based on factors such as the service class of a cell and the congestion state at the cell buffers. Accordingly, Nagamoto cannot be said to disclose each of the features of claim 9.

For at least these reasons, the rejection of claim 9 under 35 U.S.C. § 102(e) based on Nagamoto is improper and should be reversed.

5. Claims 10-12

Independent claim 10 also stands rejected under 35 U.S.C. § 102(e) based on Nagamoto.

Claim 10 is directed to a multiplexing device including a discard control component configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber. The device of claim 10 further includes a detection component including a queue for storing cells from the subscriber and a comparison component configured to compare a degree of occupancy of the queue to a threshold to obtain a congestion level corresponding to an amount of congestion of the queue. The discard control component selectively discards cells received from the subscriber based on the congestion level and the communication state information.

Appellant submits that Nagamoto does not disclose each of the features recited in claim 10. Nagamoto, for example, does not disclose or suggest a multiplexing device including a discard control component configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber, where the discard control component selectively discards cells received from the subscriber based on the congestion

level and the communication state information. Nagamoto may be said to discard cells in a switching unit. Nagamoto, however, does not disclose or suggest, as is recited in claim 10, a discard control component that selectively discards cells received from a subscriber based on a congestion level and based on communication state information, in which the communication state information is determined based on header data of cells received from a switch and a subscriber.

As previously mentioned, Nagamoto appears to disclose two general criteria on which cell discard control is based: (1) the service class of a cell and (2) the congestion state at a cell buffer in the switch. (Nagamoto, column 4, lines 6-46).

Regarding criteria (1), the "service class of a cell," Nagamoto appears to disclose that different service classes may be treated differently when determining whether to drop cells. (Nagamoto, column 4, lines 8-33). The service class of a cell, however, appears to be a preset property of a cell, and cannot be said to correspond to communication state information, and certainly does not correspond to communication state information determined based on header data of cells received from a switch and a subscriber, as recited in claim 10.

Appellant submits that "the congestion state at the cell buffer," as disclosed by Nagamoto, also does not disclose or suggest the communication

state information recited in claim 10. As described at column 4, lines 34-49 of Nagamoto (quoted above), the congestion state of cell buffers in the switch of Nagamoto are communicated by a back pressure 'BP' signal (Fig. 2 of Nagamoto). Using a back pressure signal to communicate a congestion state of buffers can not reasonably said to disclose or suggest the communication state information recited in claim 10, which is determined based on header data of cells received from a switch and a subscriber.

In rejecting claim 10 in the Final Office Action, the Examiner relies on Fig. 2, column 3, lines 45-60, and column 4, lines 7-57 of Nagamoto as allegedly disclosing a discard control component configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber (Final Office Action, p. 5). Fig. 2 and portions of column 4 were discussed above. Column 3, lines 45-60 of Nagamoto discloses:

> FIG. 2 is an block diagram showing a ATM switch in a preferred embodiment of the invention. In FIG. 2, HWIN1 to HWINx are input ports, PD1 to PDx are selective cell discard controllers (PD).
>
> An input to each PD is multiplexed by a cell multiplexer (hereinafter referred to as 'CI'), stored into a targeted cell buffer CB1 of cell buffers CB1-1 to -y for an output port group according to the routing information of an input cell.
>
> All output ports are classified into several output port groups, several output port groups belong to one output port group, one cell buffer CB1 for output port group is provided for each one output port group. CI and CB1 compose a first-stage switch unit (SW1).

(Nagamoto, column 3, lines 45-60). This section of Nagamoto discloses, among

other things, that an input to each PD is multiplexed by a cell multiplexer and that output ports are classified into several output port groups. This section of Nagamoto, however, in no way discloses or suggests the discard control component recited in claim 10, which is configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber.

Claims 11 and 12 depend from claim 10. Therefore, this claim is patentable over Nagamoto for at least the reasons given above with respect to claim 10.

VIII. CONCLUSION

In view of the foregoing arguments, Appellant respectfully solicit the Honorable Board to reverse the Examiner's rejections of claims 1-3, 7, and 9-12 under 35 U.S.C. § 102(e).

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to

Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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IX. CLAIM APPENDIX

1. A multiplexing apparatus for connection to a switching unit and to each of plural subscribers through communication lines and performing multiplexing processing of cells sent from the plural subscribers, the multiplexing apparatus comprising:

detection means for detecting a congestion state corresponding to received cells from the subscribers and outputting a level value corresponding to the congestion state, said level value indicating an amount of congestion; and

discard means for selectively discarding the received cells from the subscribers based on a communication state determined by cells received from the switching unit and cells received from the subscribers and based on the level value of the congestion state.

2. A multiplexing apparatus as defined in claim 1, wherein the communication state is updated on the basis of header information included in the received cells from the switching unit and header information included in the received cells from the subscribers.

3. A multiplexing apparatus as defined in claim 1, wherein the detection means comprises storage means for storing the received cells from the

subscribers, and comparison means for generating the level value on the basis of a degree of occupancy in the storage means of the stored cells and a preset threshold.

4. A multiplexing apparatus as defined in claim 1, wherein the discard means comprises:

switching unit monitor means for receiving the cells from the switching unit and outputting header information of the received cells from the switching unit as first header information; and

subscriber monitor/selection means for receiving the cells from the subscribers and outputting header information of the received cells from the subscribers as second header information and selectively discarding the received cells from the subscribers on the basis of a discard command,

wherein the discard means updates status data indicating the communication state on the basis of the first header information or the second header information and generates a discard command for commanding discard of the received cells from the subscribers on the basis of the updated status data and the level value of a warning signal.

7. A multiplexing apparatus as defined in claim 4, wherein the discard command is generated on the basis of criteria of a preset logic decision.

9. A method of discarding cells comprising:

receiving cells sent from subscribers and detecting a congestion state of the received cells from the subscribers;

updating a communication state determined based on the received cells from the subscribers and based on received cells from a switching unit;

deciding, to obtain a decision result, whether discard processing of the received cells from the subscribers is performed on the basis of the updated communication state and a level value of a signal indicating the congestion state, said level value indicating an amount of congestion; and

selectively performing the discard processing on the basis of the decision result.

10. A multiplexing device comprising:

a discard control component configured to maintain communication state information determined based on header data of cells received from a switch and a subscriber; and

a detection component including:

a queue for storing cells from the subscriber, and

a comparison component configured to compare a degree of occupancy of the queue to a threshold to obtain a congestion level corresponding

to an amount of congestion of the queue,

wherein the discard control component selectively discards cells received from the subscriber based on the congestion level and the communication state information.

11. The device of claim 10, wherein the device includes a plurality of discard control components and detection components, the plurality of discard control components and detection components being arranged such that one control component and one detection component is assigned to each subscriber.

12. The device of claim 10, wherein the threshold further includes:

a plurality of thresholds corresponding to different congestion levels.

X. EVIDENCE APPENDIX

None.

XI. RELATED PROCEEDINGS APPENDIX

None.